

Controlling Major Sources of Pathogens

Pathogens can cause illness in people exposed through bathing in, or consuming fish or shellfish from contaminated waters. Pathogen contamination results in closed beaches, fisheries, or shellfish areas, hurting local economies and damaging public perception of the ecological health of the Sound.

Overall CCMP Strategy:

As sources of pathogens come under better control, human and environmental exposures lessen and ambient conditions improve. The CCMP identifies a seven part strategy to control pathogen contamination to LIS from: 1) combined sewer overflows (CSOs); 2) nonpoint sources (NPS); 3) sewage treatment plants (STPs); 4) vessel discharges; and 5) individual on-site systems/discharges. The final two elements of the strategy are to control pathogen contamination through: 6) public education; and 7) monitoring and assessment. As the public becomes educated concerning the impact of personal behaviors on the environment, i.e., improper disposal of pet wastes, inappropriate/illegal feeding of wildlife, changes in such behaviors may benefit the Sound.

Environmental Indicators/Results/Trends

Current LIS indicators include number of beach closure days and number of vessel pumpout stations. The number of LIS beach closure days reported in 2001 equal less than one-half of one percent of all available beach days from Memorial Day to Labor Day (240 beaches x 106 days = 25,440 beach days). Historically, most closures are due to rainfall levels that require presumptive action by local health departments. There is one chronically closed beach (closed for ≥ 3 days/yr. for 3 of last 5 years) in the LIS watershed – Harbor Island Park, Mamaroneck, NY. The number of pumpouts in NY and CT has increased from 43 in 1995 to 127 in 2001.

2001 Highlights:

- Phased CSO abatement projects to alleviate pathogen problems continued in both states in 2001. Connecticut anticipates spending \$560 million over the next 15 years completing these projects.
- New York City continued its \$1.5 billion comprehensive program to abate CSOs, scheduled for completion by 2006. Facility planning and preliminary design for CSO abatement of discharges to tributaries of the East River and Western Long Island Sound continued. Construction of one major CSO retention facility on Flushing Creek will reduce impacts to Flushing Creek, the East River, and Western Long Island Sound and is scheduled for completion by 2004.
- New York City has increased capture of runoff in CSO areas from 40 percent last year to 55 percent in 2001, and is almost in complete compliance with EPA's minimum standards for CSO controls.
- As of 2001, Connecticut has 67 land-based pumpout facilities and 9 pumpout boats; of the 76 pumpouts, 75 are accessible to the general public; there are 15 total dump stations, 14 of which are accessible to the public. There are 51 pumpout stations in the New York LIS coastal area. This brings the total number of pumpout stations/boats available in LIS to 127.
- The NRCS conducted the Watershed Collaboration Assistance Project to develop and make available tools to assist stakeholders and communities in working in a collaborative, participatory approach to watershed protection. The project developed draft Community Collaboration Guide Sheets in 2001 and expects to release them in 2002.

SUMMARY OF CCMP MANAGEMENT ACTIONS: PATHOGEN CONTAMINATION

P-1. CONTROLLING PATHOGEN CONTAMINATION FROM COMBINED SEWER OVERFLOWS (CCMP TABLE 31, P. 83)

Key Elements: Many municipalities with older sewerage facilities have combined stormwater and sanitary systems. These systems overflow during rainfalls, causing untreated sewage to reach the Sound. Abatement of combined sewer overflows (CSOs) will reduce a major source of pathogens to the Sound. CSO abatement programs are underway in New York and Connecticut.

Description	2002 Planned Action
<p>New York City:</p> <p>1) continued its \$1.5 billion program to abate CSOs. The CSO program is continuing facility planning and preliminary design for CSO abatement of discharges to tributaries of the East River and Western Long Island Sound. Ongoing comprehensive planning for CSO floatables and settleable solids abatement will also result in future reductions of pathogens discharges to the East River and Western Long Island Sound.;</p> <p>2) is reviewing recreational water uses and attainability for the City's CSO facility planning and watershed-based controls affecting the Bronx River through its <i>Use and Standards Attainment Project</i>. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and evaluating opportunities for improvements in the plans;</p> <p>3) increased capture of runoff in CSO areas from 18 percent to 55 percent in 2001, and is in almost complete compliance with EPA's minimum standards for CSO controls;</p> <p>4) continued planning under its Comprehensive City-Wide Floatables Control Abatement Plan project that is evaluating needs for additional CSO abatement that are not part of the City's water quality based CSO control program. Planning is ongoing for the Bowery Bay WPCP service area. This project is likely to result in the recommendation of additional CSO controls, which will further reduce discharges of pathogens to the East River, its tributaries and the City's waters of western LIS.</p>	<p>Construction of one major CSO retention facility on Flushing Creek that will reduce impacts to Flushing Creek, the East River, and Western Long Island Sound and is part of NYC's comprehensive sewer abatement program is scheduled for completion by 2004.</p> <p>Continue planning and initiate planning for the Hunts Point and Tallman Island WPCP service areas.</p>
<p>New Haven has been working toward the removal of all CSO's since early 1981. A plan was developed to set forth a path for the containment of a 10-year storm and elimination of the City's 22 CSO's by completely separating the City's stormwater and sanitary sewer systems. The first phase completed in 1996, eliminated two CSO's at a cost of \$15 million. The project has been divided into several geographical areas designated by an alphabetical and numerical identification system, i.e., A, B, C, etc. In 2001 area F-4 entered the construction phase for separating the combined sewer overflows. Clean Water Fund \$1,249,850 was awarded in 2001 for the design phase of area "G" of the city's CSO system. In 2001, New Haven also submitted their Long Term Control Plan (LTCP) for CSO control to CTDEP for approval.</p> <p>Bridgeport submitted its LTCP on January 24, 2001. (Total expected state grant & loan funding is over \$5 M)</p> <p>The CT State Bond Commission awarded over \$4.3 M toward CSO projects statewide in 2001.</p>	<p>A second phase, to be completed in 2002, will eliminate two additional CSO's (area F-4) at a cost of \$26 million. The City proposes to eliminate remaining CSO's over 15 years at a cost of \$180 million.</p> <p>Allocate funding for additional projects in 2002.</p>
<p>Bronx River CSO Storage Conduit Project will provide storage capacity. Meetings and field investigations have taken place</p>	<p>The East River CSO Facility Plan is expected to be completed in the summer of 2002.</p>
<p>Flushing Bay CSO Retention Facility is an underground storage tank which has a storage capacity of 43 million gallons, 48 MG in the tank and 15 MG in upstream sewers. Phase I construction of the project is complete.</p>	<p>Stage II is scheduled for completion in December 2004.</p>
<p>Hutchinson River CSO Storage Conduit Project will provide storage capacity. Meetings and field investigations have taken place.</p>	<p>The East River CSO Facility Plan is expected to be completed in the summer of 2002.</p>

Alley Creek drainage area improvements/CSO abatement Facilities project has three components. The Alley Creek drainage area improvements, Alley Creek CSO abatement facility, and the Oakland Ravine Stormwater Treatment System. Meetings and field investigations have taken place.

Construction to begin in 2002.

Westchester Creek CSO Storage Tank Project includes construction of 12 MG underground storage tanks.

The East River CSO Facility Plan is expected to be completed in the summer of 2002.

P-2. CONTROLLING PATHOGEN CONTAMINATION FROM NONPOINT SOURCES (CCMP TABLE 32, P. 84R)

Key Elements: LISS has determined that nonpoint sources, including urban stormwater runoff, is one of the two most significant sources of pathogen contamination in Long Island Sound. Urban stormwater runoff containing pathogens can originate from many sources. Therefore, it presents a challenge to manage pathogens from nonpoint sources. Methods of controlling pathogens from nonpoint sources include, but are not limited to: best management practices; permitting activities; changes in building codes; consent agreements; and technical assistance and education.

Description	2002 Planned Action
In 2001 the LISS funded year 2 of the New York NEMO nonpoint source education program for municipal officials for \$75,000. The program is described further below under P-6, <i>Controlling Pathogen Contamination Through Public Education</i> , page 18, and under E-2, <i>Public Information and Education</i> , page 39.	NY NEMO has applied for year 3 funding from the LISS.
The LISS continued to support the Norwalk River Watershed Initiative, guided by the Norwalk River Watershed Advisory Committee. EPA, NRCS, CTDEP, the seven watershed communities, several citizen groups, and area residents comprise the Committee. From FY98-01, EPA awarded \$340,000 in CWA§319 funds to support several high priority implementation activities, including the watershed coordinator position, riparian buffer restoration, stormwater management, road sand/salt reduction, and septic system outreach and education.	
The NYSDEC Phase II storm water implementation plan will involve the permitting of many storm sewer systems which discharge to the Long Island Sound. NYSDEC is also looking into a phase-in approach (statewide) and have discussed the possibility of LIS as one of the first areas to begin this effort.	NYSDEC has made some progress, but will need to have SPDES permits in place for these discharges by March 2003.

P-3. CONTROLLING PATHOGEN CONTAMINATION FROM SEWAGE TREATMENT PLANTS (CCMP TABLE 33, P. 85)

Key Elements: If operating properly, most sewage treatment plants contribute a relatively small percentage of pathogens to the Sound. However, malfunctions, illegal sewer hookups, and wet weather overflows can cause problems at STPs.

Description	2002 Planned Action
NYCDEP continued planning for maximizing wet weather flow to its WPCPs through operation optimization. These actions specifically affect discharges to the East River, its tributaries, and the City's waters of western LIS.	Continue to improve wet weather capture through operational and structural changes to the WPCPs and collection system. Enhance capture for Hunts Point and Tallman Island WPCP service areas. Continue evaluating operational changes in the other drainage areas.
Thomaston, South Windsor, and Salisbury, CT STPs completed installation of UV pathogen control equipment during 2001.	Construction of UV units will continue for the Fairfield and Litchfield, CT STPs.

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Description	2002 Planned Action
The Watertown, CT STP went off line and tied into the Waterbury STP system, which has a state of the art ultraviolet (UV) disinfection unit to eliminate pathogens and reduce the chlorine toxicity resulting from traditional chlorine disinfection systems.	Continue to operate the new facilities and closely monitor for efficiency.

P-4. CONTROLLING PATHOGEN CONTAMINATION FROM VESSEL DISCHARGES (CCMP TABLE 34, P. 86)

Key Elements: Although not a primary source of pathogens in the Sound, vessel discharges can be a cause of local water quality problems in poorly-flushed embayments. Creation of vessel No-Discharge Zones, use of best management practices, and increasing the number of vessel pumpout stations are major actions to manage pathogen contamination from vessel discharges.

Description	2002 Planned Action
CTDEP received \$692,000 in CVA funding in 2001. One additional boat was operational for the 2001 boating season. In CT by the end of the 2001 boating season there were 76 total pumpouts (9 of which are boats) 75 of which are available to the general public and 15 dump stations (including one floating rest room) 14 of which are available to the general public.	A decision on Federal FY 2002 funding for CT is anticipated in April 2002. CT has proposed to construct 1 additional stationary pumpout and provide further O&M funding.
New York State Environmental Facilities Corporation awarded \$15,898 in CVA funds in 2001 for three projects in the LIS coastal zone.	Development of a Local Information & Education Grant Program.
The Mystic pumpout boat was operated and maintained by the Towns of Groton and Stonington with a CVA grant. The DEP pumpout boat continued its education and outreach mission exclusively in the Connecticut River for the 2001 boating season.	The DEP pumpout boat will continue its education and outreach mission exclusively in the Connecticut River for the 2002 boating season. It is anticipated that an additional pumpout boat will be purchased by DEP during the Federal FY2002.
There are 51 pumpout stations in the LIS coastal watershed area of New York State. Pumpout station locations are posted on the NY Sea Grant website at: http://www.cce.cornell.edu/seagrant/pumpouts/lipumpouts.html . Several CVA projects were completed in the LIS marine district in 2001: Island View Marina, Suffolk County, Brookhaven Township; and Port of Egypt Marine, Inc., Suffolk County, Southold Township.	
Publication in the "Embassy Guide" of the locations of pumpouts in all of Long Island Sound was coordinated between staff of the CT and NY CVA programs.	This biennial publication will again be prepared prior to the 2003 boating season
Progress has been made on the establishment of EPA designated no discharge areas in the Pawcatuck River/Little Narragansett Bay complex and for Stonington Harbor all in eastern CT. A consultant has been selected to develop the application to EPA.	Work will proceed on the establishment of no discharge areas for the CT side of the Pawcatuck River/Little Narragansett Bay complex (the RI side is already so designated) and for the Stonington Harbor area.
The LISS Small Grants Program provided funding in 2001 to Friends of the Bay (Oyster Bay) for a bilge sock education program for boaters in the bay area. The project will provide 5,000 bilge socks to raise boaters' awareness of vessel discharges to the Sound.	

P-5. CONTROLLING PATHOGEN CONTAMINATION FROM INDIVIDUAL ON-SITE SYSTEMS/DISCHARGES (CCMP TABLE 35, P. 87)

Key Elements: When they are appropriately sited, functioning properly, and well-maintained, septic systems should not be a source of pathogens to the Sound. When not properly sited or maintained, they become a source of pathogens to the Sound. Both states' and local governments must play a role in managing pathogen contamination from individual on-site systems to the Sound.

Description	2002 Planned Action
NYSDEC is using CWA Section 319 funds to support development of an on-site training center. A demonstration facility is located at the campus of the SUNY College at Morrisville, New York. Part of DEC's funds subsidize tuition for public officials that take the training. As of Fall 2001, the administration of the Onsite Training Network has moved to SUNY-Delhi.	A 2002 - 2003 training schedule is expected in March 2002 and will be distributed to DEC Regional Offices and to County Water Quality Coordinating Committees.
The Nonpoint Source Coordinating Committee (NPSCC), coordinated by the NYSDEC Division of Water, NPS Management Section, convenes an On-site Wastewater Treatment System(OWTS) Work Group. The work group is comprised of stakeholders interested in the proper siting, design, installation, and operation and maintenance of septic systems. A white paper was drafted in 2001 with highlights of problematic issues and possible solutions presented to the NY NPSCC in April	A final white paper is expected in April 2002. Actions will depend on stakeholder agencies responsible to the management suggestions from the OWTS Workgroup.
The NYSDEC and NYSDOS are drafting a management strategy for Onsite Wastewater Treatment Systems (OWTS), in conformance with the provisions of the Coastal NPS Management Program under Section 6217 of the CZMA. Specific issues being addressed are the periodic inspection of operating systems, and the possible impact on nitrogen limited waters. Components addressing specific issues were submitted to EPA and NOAA: Periodic inspection and management of existing systems (December 2001), and the possible impact on nitrogen limited waters (November 2001). The Real Property Law "Property Condition Disclosure Act" was amended in the 2001 legislative session to include septic systems use and location identification, and inspection status, at the time of property transfer and signed by Governor Pataki on November 11, 2001.	Continued implementation of the OWTS strategy while awaiting EPA and NOAA approval of Coastal NPS Management Program.

P-6. CONTROLLING PATHOGEN CONTAMINATION THROUGH PUBLIC EDUCATION (CCMP TABLE 36, P. 88)

Key Elements: In many cases, simple lifestyle changes can reduce or eliminate a source of pathogen contamination in the Sound. Upon available funding, the CCMP called for development and implementation of a public education plan, targeting specific audiences, in cooperation with federal, state and local public outreach experts and environmental educators.

Description	2002 Planned Action
Education of boaters continued to be a focus of the CT CVA program. CTDEP staff attended boat shows with displays and contacted individual boaters. CTDEP staff attended the annual meeting of the Connecticut Harbor Management Association and displayed outreach materials.	Implement base work plan in 2002. In addition a interactive computer/video kiosk is under development.
The LISS reprinted and distributed thousands of copies of a four-part poster series highlighting nonpoint source pollution problems. The posters humorously illustrate four common nonpoint pollution problems for the Sound, including runoff from car washing, fertilizing, leaking automotive oil, and pet waste. The posters were adapted for LIS from the Washington State Department of Ecology's posters for Puget Sound.	Continue to reprint and distribute materials.

The New York NEMO Program delivered locally customized workshops to watersheds and sub-watersheds in Hempstead Harbor and Manhasset Bay, developed and conducted focus workshops pertaining to the EPA Phase II Storm Water regulations and provided a focus presentation to municipal staff regarding reduction of landscaping practices' NPS impacts. In addition, the program expanded to Suffolk County and has achieved a broader reach as the result of its participation on the NYS Nonpoint Source Coordinating Committee and the Nassau County Water Quality Strategy Coordinating Committee.

Expansion of the Program to support additional Long Island Sound local governments, potentially linking intermunicipal efforts in Nassau and Suffolk Counties. This will involve development of new, locally specialized NY NEMO "Linking Land Use to Water Quality" workshop presentations. Goals for 2002 also include creation of new focus topic modules, e.g., compliance with the EPA Phase II Storm Water regulations.

IEC produced its 2001 Annual Report summarizing its tri-state water quality monitoring program and results. The report describes the status of plant upgrades and construction in the tri-state environmental district. IEC conducted its annual inspection trip of Commission waters in August 2001 for environmental district members. IEC developed a new website at www.iec-nynjct.org.

NYCDEP produced its annual *Regional Harbor Survey* report for 2000 in November 2001. The report summarizes water quality conditions in NY Harbor, specifically the Upper East River and Western Long Island Sound region. Among other water quality parameters measured, the report indicates that summer-averaged fecal coliform concentrations have fallen dramatically and significantly throughout much of this region of the Harbor over the past 16 years. A regional summary of the report is available on the NYCDEP website at: <http://www.ci.nyc.ny.us/html/dep>.

P-7. MONITORING AND ASSESSMENT OF PATHOGENS (CCMP TABLE 37, P. 89)

Key Elements: Monitoring of pathogens is a tool that will allow assessment of the success of the pathogen reduction activities called for in the CCMP. Monitoring and assessment are essential to improved understanding of pathogen contamination in the Sound. A well-designed monitoring program is an essential element for effective management of Long Island Sound and its watershed.

Description

2002 Planned Action

The *Beaches Environmental Assessment and Coastal Health Act* (BEACH) of 2000, PL 106-284 ensures standards for pathogens that protect human health; establishes monitoring and notification measures, and provides initial development and implementation grants to states. EPA requested and Congress appropriated \$5.0 million in FY2001 for this program. On May 30, 2001 EPA published a Federal Register notice of availability of funding for state development grants to begin implementing portions of the Beach Act.

The states of Connecticut and New York will determine appropriate actions to implement Beach Act requirements.

IEC continued to chair the Regional Bypass Work Group (RBWG), to address unplanned bypasses of raw and partially treated sewage, i.e., treatment plant upsets, broken pipes due to age, or construction mishaps. The RBWG members include NY, NJ, CT environmental and health departments, IEC, EPA, FDA, NYCDEP, and county health officials. The RBWG developed a model to predict which areas may be affected by a particular bypass. Timely model predictions can determine whether a discharge occurring at a certain point will affect another area, and if a beach or a shellfish area should be closed. In addition, regional notification protocols are in place.

The IEC will continue to chair the RBWG.

During 2001, 26 beach-days were lost in Nassau County beaches on Long Island Sound. All were pre-emptive closures, i.e., closed due to rainfall that has typically resulted in high coliform levels. Closures involved five beaches, four of which were in Hempstead Harbor (4 days for each beach) and one of which was in Cold Spring Harbor (10 days).

Monitoring for pathogens will continue in 2002.

There were no beach closures due to pathogen contamination on LIS beaches in Suffolk County during 2001.

In Westchester County, there were 136 total beach closure days due to pathogens. Of these, 68 were at Harbor Island Park in Mamaroneck, where a pathogen problem in the Mamaroneck River (which feeds the embayment where the park is located) was present.

In 2000, the latest reporting period available, there were no closings at Orchard Beach, the NYC public beach in Western LIS. There were two closing due to high coliform counts at the 11 private East River beaches, but they did not appear to be attributed to NYC point sources. Avian sources, such as geese and sea gulls, have, on occasion, been implicated as important contributors of bacteriological contamination of recreational waters.

Description	2002 Planned Action
In Connecticut, during 2001, 79 beach days were lost due to closures based on tests showing elevated levels of bacteria (pathogens). There were 404 beach closure days as pre-emptive "Administrative Closures" due to heavy rainfall events and nearby beach closures.	CT municipalities, regional health districts, and CTDEP will continue to monitor for bacteria (pathogens) in 2002.
IEC continued to conduct unannounced effluent surveys at CT and NYS WPCPs that discharge into the LIS portion of the Interstate Environmental District, which includes the counties of Nassau, Suffolk and Westchester in NY and Fairfield and New Haven Counties in CT. These surveys are conducted to check compliance with SPDES permits and IEC water quality regulations, which are included in the SPDES permits. Pathogens monitored include fecal and total coliforms.	IEC will continue to conduct effluent surveys at CT and NY WPCP's; additional pathogens for monitoring include fecal streptococcus and enterococcus.
NYCDEP continued its Harbor Survey program by monitoring <i>fecal coliform</i> and <i>enterococcus</i> in the City's waters and its waterbodies in Western Long Island Sound. Several East River tributary stations were added to the program in 2001.	Continue Harbor Survey program and enhance enterococcus sampling.
CTDOA/DA continued its annual monitoring of shellfish beds for pathogens, providing invaluable information to the shellfish industry and the public on the classification and condition of shellfish beds.	Continue to monitor shellfish beds for health and viability.